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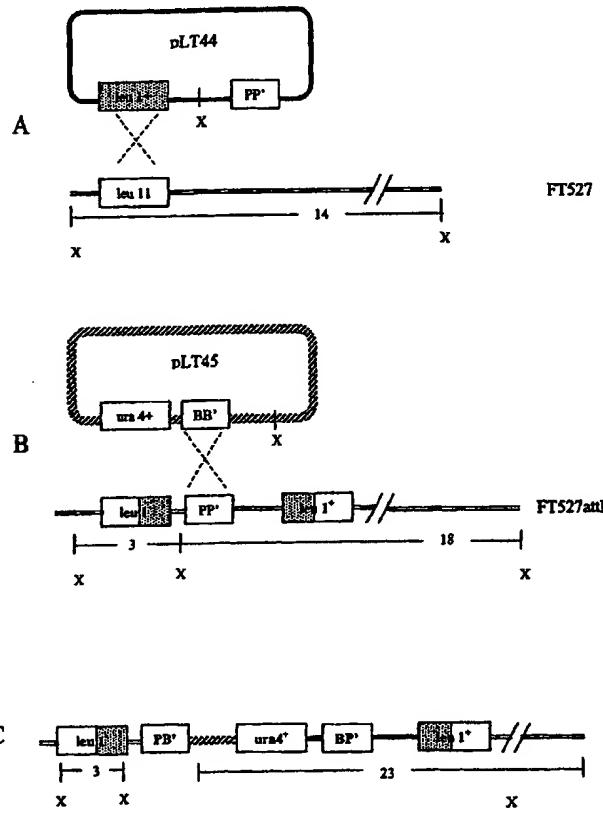
(71) Applicants: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA [US/US]; Office Of Technology Transfer, 1111 Franklin Street, 12th floor, Oakland, CA 94607-5200 (US). THE UNITED STATES OF AMERICA as represented by the SECRETARY OF AGRICULTURE [US/US]; 1400 Independence Avenue S.W., Washington, DC 20250 (US).

(72) Inventors: OW, David, W.; 127 Brenner Street, Hercules, CA 94547-3749 (US). CALENDAR, Richard; 940 Euclid Street, Berkeley, CA 94708-1436 (US). THOMASON, Lynn; 1061 H. Monroe Street #7, Albany, CA 94706-2282 (US).

(74) Agents: SMITH, Timothy, L. et al.; Townsend and Townsend and Crew LLP, Two Embarcadero Center, 8th floor, San Francisco, CA 94111-3834 (US).

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(54) Title: DNA RECOMBINATION IN EUKARYOTIC CELLS BY THE BACTERIOPHAGE PHIC31 RECOMBINATION SYSTEM



(57) Abstract: This invention provides methods for obtaining specific and stable integration of nucleic acids into eukaryotic cells. The invention makes use of site-specific recombination systems that use prokaryotic recombinase polypeptides, such as the  $\Phi$ C31 integrase, that can mediate recombination between the recombination sites, but not between hybrid recombination sites that are formed upon the recombination. Thus, the recombination is irreversible in the absence of additional factors. Eukaryotic cells that contain the recombinase polypeptides, or genes that encode the recombinases, are also provided.

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patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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## INTERNATIONAL SEARCH REPORT

Int'l Application No  
PCT/US 00/19983A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 C12N5/10 C12N15/79 C12N15/90 //C12N9/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, CHEM ABS Data, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 00 11155 A (UNIV LELAND STANFORD JUNIOR) 2 March 2000 (2000-03-02) page 4 page 5, line 25 -page 6, line 2	1-8, 10-47
A	THORPE, H. M. ET AL.: "In vitro site-specific integration of bacteriophage DNA catalyzed by a recombinase of the resolvase/invertase family" PNAS, vol. 95, 1998, pages 5505-5510, XP002157128 cited in the application abstract	1-47

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents:

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Name and mailing address of the ISA  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.  
Fax. (+31-70) 340-3016

Authorized officer

Mata Vicente, T.

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INTERNATIONAL SEARCH REPORT  
Information on patent family members

International Application No  
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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 0011155 A	02-03-2000	AU	5898599 A	14-03-2000
WO 9918222 A	15-04-1999	AU EP	9466898 A 1021550 A	27-04-1999 26-07-2000